

Serial No.: 09/929,716

Attorney Docket No.: 01P14759 US

**IN THE CLAIMS:**

This listing of the claims will replace all prior versions and listings of the claims in the application:

1. (Currently Amended) A method for reducing intersymbol interference in a telecommunications system, comprising:
  - specifying an initial shaping filter;
  - determining a level of intersymbol interference for a final shaping filter where said final shaping filter is obtained by further processing said initial shaping filter, including generating a white noise data sequence for modeling channel noise and intersymbol interference; and
  - updating final shaping filter coefficients at optimal sampling points iteratively until the intersymbol interference is at or below a desired level.
2. (Original) A method in accordance with claim 1, wherein said optimal sampling points are at a sampling period.
3. (Original) A method in accordance with claim 2, wherein said initial shaping filter is obtained by performing a convolution on a given filter, with certain spectral and time domain characteristics, with its matched complex counterpart.
4. (Currently Amended) A method, comprising:
  - specifying a given filter with certain time domain and spectral characteristics,
  - obtaining a matched filter counterpart of said given filter;
  - performing a convolution between said given filter and said matched filter to obtain an initial shaping filter;
  - generating a noise data sequence, said data sequence comprising a channel noise and intersymbol interference model;

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convolving said data sequence with said given filter; and  
deriving an optimized shaping filter responsive to said convolving by adaptively minimizing an error metric at points on said initial shaping filter corresponding to optimal sampling points thus producing a signal with minimal ISI period.

5. (Original) A method in accordance with claim 4, said error metric comprising a least mean squares error metric.

6. (Currently Amended) A telecommunications device, comprising:  
a coder for encoding data;  
an RF modulator; and  
a shaping filter for shaping said coded data, the shaping filter generated by constraining the filter coefficients in their adaptation at the optimal sampling point and not constraining them at the non-sampling points, an initial shaping filter comprising a channel noise model and intersymbol interference shaping filter for minimizing intersymbol interference, said initial shaping filter derived from a matched filter and white noise data sequence.

7. (Original) A telecommunications device in accordance with claim 6, said shaping filter derived from a convolution between a filter and its corresponding matched filter.

8. (Original) A telecommunications device as recited in claim 7, wherein said constraining is iteratively performed until an error metric reaches a steady state minimum level.

9. (Original) A telecommunications device as recited in claim 8, wherein said constraining is iteratively performed until an error metric reaches a predetermined

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threshold level.

10. (Currently Amended) A method, comprising:

specifying an initial filter;

first convolving said initial filter with its complex conjugate to obtain an initial shaping filter;

second convolving said initial filter with a noise data sequence, said noise data sequence comprising a channel noise and intersymbol interference model; and

deriving, responsive to said first and second convolving, a shaping filter by minimizing an error metric at points on said initial shaping filter corresponding to an upsampling period.

11. (Original) A method as recited in claim 10, wherein said deriving comprises constraining the filter coefficients in their adaptation at the optimal sampling point and not constraining them at the non-sampling points.